

Date: Fri, 18 Feb 94 19:29:49 PST
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V94 #176
To: Info-Hams

Info-Hams Digest Fri, 18 Feb 94 Volume 94 : Issue 176

Today's Topics:

 * SpaceNews 21-Feb-94 *
 FT-530 Firware Problems (epilogue)
 ORBS\$049.2L.AMSAT
 ORBS\$049.MICRO.AMSAT
 ORBS\$049.MISC.AMSAT
 ORBS\$049.OSCAR.AMSAT
 ORBS\$049.WEATH.AMSAT

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: 18 Feb 94 19:18:05 GMT
From: news-mail-gateway@ucsd.edu
Subject: * SpaceNews 21-Feb-94 *
To: info-hams@ucsd.edu

SB NEWS @ AMSAT \$SPC0221
* SpaceNews 21-Feb-94 *

BID: \$SPC0221

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SpaceNews
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MONDAY FEBRUARY 21, 1994

SpaceNews originates at KD2BD in Wall Township, New Jersey, USA. It is published every week and is made available for unlimited distribution.

★ OSCAR SKN BEST FISTS ★

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Many thanks to all who participated in our 22nd Annual Straight Key Night on OSCAR, 1 January 1994. The following "Best Fist" nominations have been received: W1NU, WQ3Y and W6HDO. Although we didn't ask that logs be submitted, several participants also reported working AMSAT-NA's esteemed president, W3X0/5, in one of Bill's rare appearances on CW (PVRC members especially will appreciate the significance of this occasion). An "honorary" Best Fist nomination goes to you, Bill; let's hope that more SSB ops will follow your fine example, dust off their old pump handles, and enjoy the fun.

See you all next year!

[Info via Ray, W2RS]

★ STS-62 PRE-LAUNCH ORBITAL DATA ★

=====

STS-62

1 00062U	94062.63664409	.00073440	00000-0	22129-3 0	29
2 00062	39.0115 247.8629 0006644	298.2691	61.7477	15.90695888	27

Satellite: STS-62

Catalog number: 00062

Epoch time: 94062.63664409 = (03 MAR 94 15:16:46.05 UTC)

Element set: 002

Inclination: 39.0115 deg

RA of node: 247.8629 deg

Eccentricity: .0006644

Arg of perigee: 298.2691 deg

Mean anomaly: 61.7477 deg

Mean motion: 15.90695888 rev/day

Decay rate: 7.3440e-04 rev/day^2

Epoch rev: 2

Checksum: 310

Space Shuttle Flight STS-62
Prelaunch Element set JSC-002
Launch: 03 MAR 94 13:54 UTC

G. L. Carman

NASA Johnson Space Center

[Info via Gil Carman]

★ OSCAR-13 ZRO TEST SKED ★

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The ZRO Memorial Technical Achievement Award Program, or just "ZRO Test" has a new schedule for February and March, 1994, via AMSAT-OSCAR-13. This activity is a test of operating skill and equipment performance.

During a typical ZRO run, a control station will send numeric code groups using CW at 10 words-per-minute. At the beginning of the run, uplink power from the control station is set to match the general beacon downlink strength. This is level "zero". The control operator will send and repeat a random five-digit number, then lower his uplink power by 3 dB (half power) and repeat the procedure with a new random number (level "1"). This will continue to a level 30 dB below the beacon (level "A").

A participating listener monitors the downlink signals till he can no longer copy the numbers. Those who can hear the beacon will qualify for the basic award by copying the code group heard at level "zero". The challenge is to improve home-station performance to a point where the lower-level downlink signals can be copied (levels 6 through A). To date, only one station (Darrel Emerson, AA7FV) has successfully copied level "A".

The following schedule of Mode "B" tests were chosen for convenient operating times and favorable squint angles. The tests can be heard on 145.840 MHz. Andy WA5ZIB will conduct all the tests. Mode "JL" tests will no longer occur due to the failure of AO-13's 70-cm transmitter.

Day	Date (UTC)	Time	Areas covered
Sunday	Feb. 20, 1994	0330 UTC	NA, NW SA, Japan, Pacific
Saturday	Feb. 26, 1994	1930 UTC	NA, SA, Europe, Africa, ME
Saturday	Mar. 19, 1994	1930 UTC	NA, SA, Europe, Africa
Saturday	Mar. 26, 1994	2315 UTC	NA, SA

Note that the dates and days are shown in "UTC", thus the first test listed occurs at 9:30 PM CST Saturday night (the 19th). Any changes will be announced as soon as possible via the AMSAT HF and AO-13 Operations Nets.

All listener reports with date of test and numbers copied should be sent to Andy MacAllister WA5ZIB, AMSAT V.P. User Operations, 14714 Knights Way Drive, Houston, TX 77083-5640. A report will be returned verifying the level of accurate reception. An S.A.S.E. is appreciated but not required.

Information about the AMSAT Awards Program can be found on page 197 of the "Proceedings of the AMSAT-NA Tenth Space Symposium" (1992). This paper, covering all the AMSAT-NA awards including specifics on the ZRO Test, was reprinted on page 10 in the March/April 1993 issue of "The AMSAT Journal". The ZRO Test information provided in the article covers test procedures, means for obtaining certificates and gives some historical background about the program. Reprints of the article can be obtained for an S.A.S.E.

to WA5ZIB at the address above.

[Info via WA5ZIB]

* DISCOVERY-MIR RADIO LINK *

=====

The Space Shuttle Discovery's crew and the MIR Russian space station made an Amateur Radio contact on 08-Feb-94 during a period of time when Discovery was over the south Pacific and MIR was over the Caribbean.

"We fly during a lot of time with Sergej and I wish a good work with his North American colleagues, and a not problems return to the Earth", said Valery Polyakov one of the MIR cosmonauts. "Thanks, I heard you perfect", replied Krikalev in Russian.

[Info via Gustavo, LW2DTZ of AMSAT-LU]

* AMSAT HF PBBS *

=====

WT0N-3 in St. Paul, MN, USA will be on 10.127 LSB (30 meters) Monday through Saturday from 1600 UTC until 2300 UTC. This station will carry all AMSAT bulletins and Keps. It will also carry other satellite related items such as "SpaceNews". This PBBS will be set up on 300 baud HF packet, but will also be available for AMTOR or PACTOR operations if there is a need to do so. At this time, the PBBS will be set up as an experiment and any comments and suggestions should be directed to the sysop, BJ Arts, WT0N, at any one of the following addresses:

PACKET: WT0N@WB0GDB.#STP.MN.USA.NOAM

INTERNET: BJARTS@STTHOMAS.EDU

[Info via WT0N]

* FO-20 SCHEDULE *

=====

The FO-20 command station announced that a slight malfunction in the onboard command system had been detected. As a result, analog mode operation arranged from 09-Feb-94 will be performed on schedule, but there is a possibility of interruption due to satellite ground station control.

The present schedule is as announced before:

Analog mode:

09-Feb-94 07:15 -to- 16-Feb-94 07:40 UTC

23-Feb-94 08:05 -to- 02-Mar-94 06:40 UTC

09-Mar-94 07:05 -to- 16-Mar-94 07:30 UTC
23-Mar-94 07:52 -to- 30-Mar-94 08:15 UTC

Digital mode: Unless otherwise noted above.

[Info via Kazu Sakamoto, JJ1WTK]

* THANKS! *

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Thanks to all those who sent QSL cards, letters, and messages of appreciation regarding SpaceNews, especially:

N2WPW EA4RCT VK4STS G7MJL XX9AS KY0R

* FEEDBACK/INPUT WELCOMED *

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Mail to SpaceNews should be directed to the editor (John, KD2BD) via any of the following paths:

FAX : 1-908-747-7107
PACKET : KD2BD @ N2KZH.NJ.USA.NA
INTERNET : kd2bd@ka2qhd.ocpt.ccur.com -or- kd2bd@amsat.org

MAIL : John A. Magliacane, KD2BD
 Department of Engineering and Technology
 Advanced Technology Center
 Brookdale Community College
 Lincroft, New Jersey 07738
 U.S.A.

<<= SpaceNews: The first amateur newsletter read in space! -=>>

/EX

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John A. Magliacane, KD2BD * /\ / * Voice : 1-908-224-2948
Advanced Technology Center |/\ /\ /| Packet : KD2BD @ N2KZH.NJ.USA.NA
Brookdale Community College |/\ /\ /| Internet: kd2bd@ka2qhd.ocpt.ccur.com
Lincroft, NJ 07738 * \/\ / * Morse : -. -.. ..--- -... -..

Date: 19 Feb 94 03:15:37 GMT
From: news-mail-gateway@ucsd.edu
Subject: FT-530 Firmware Problems (epilogue)

To: info-hams@ucsd.edu

>I got my 530 around 5 or 6 months ago. How long is the warranty good
>for? I have never tried using the DTMF code squelch. Is this something
>I should send my radio back for even though I have never tried it out??
>If I have performed the jumper 13 removal, will that invalidate the
>warranty??
>
>Steve Adams
>sadams@ctp.org

The warranty on the FT-530 is 1 year. Whether you return the radio because of the DTMF squelch would really depend on whether or not you; a) want a radio that functions according to it's specification and/or b) might want to use the feature at some future date. I have never really used DTMF squelch but it bothered me that the radio was "defective". Since it was under warranty, the total cost to fix it now was the cost of shipping. If I waited a year, the price would rise to at least \$156! If I discover any other problems, I will certainly return it again if the warranty is still in effect. It might also give me a better resale price since I can point out that the radio has had all factory improvements performed. As for jumper 13, I had removed it but was told by Yaesu that this was an authorized modification. Yaesu does publish this modification and I believe a copy is available for the asking.

Hope this answers your questions...

Robert N2JTX
rgs%wpmax2%gfmida@uunet.uu.net

Date: 18 Feb 94 13:43:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: ORBS\$049.2L.AMSAT
To: info-hams@ucsd.edu

SB KEPS @ AMSAT \$ORBS-049.N
2Line Orbital Elements 049.AMSAT

HR AMSAT ORBITAL ELEMENTS FOR AMATEUR SATELLITES IN NASA FORMAT
FROM WA5QGD FORT WORTH,TX February 18, 1994
BID: \$ORBS-049.N

DECODE 2-LINE ELSETS WITH THE FOLLOWING KEY:
1 AAAAAU 00 0 0 BBBB.BBBBBBBB .CCCCCCC 00000-0 00000-0 0 DDDZ
2 AAAAA EEE.EEEE FFF.FFFF GGGGGGG HHH.HHHH III.IIII JJ.JJJJJJJKKKKKZ
KEY: A-CATALOGNUM B-EPOCHTIME C-DECAY D-ELSETNUM E-INCLINATION F-RAAN

G-ECCENTRICITY H-ARGPERIGEE I-MNANOM J-MNMOTION K-ORBITNUM Z-CHECKSUM

TO ALL RADIO AMATEURS BT

AO-10

1 14129U 83058B 94041.03785160 -.00000138 00000-0 10000-3 0 2618
2 14129 27.2065 342.3641 6022608 153.3557 257.8051 2.05878353 80161

UO-11

1 14781U 84021B 94044.54889300 .00000363 00000-0 69607-4 0 6647
2 14781 97.7907 65.0254 0011279 310.7761 49.2455 14.69144313532150

RS-10/11

1 18129U 87054 A 94047.04020088 .00000024 00000-0 26346-4 0 8632
2 18129 082.9204 058.3872 0011757 005.5029 354.6799 13.72331248333290

AO-13

1 19216U 88051 B 94046.66135778 .00002242 00000-0 12555 0 0 8791
2 19216 057.8129 267.9831 7205073 334.9717 002.9154 02.09729204 43460

FO-20

1 20480U 90013C 94046.42832899 -.00000014 00000-0 49346-4 0 6594
2 20480 99.0216 221.3367 0539917 255.4010 98.6634 12.83223845188515

AO-21

1 21087U 91006A 94044.50409244 .00000094 00000-0 82657-4 0 4241
2 21087 82.9374 234.2226 0036823 68.1133 292.3931 13.74534088152592

RS-12/13

1 21089U 91007A 94044.66379265 .00000043 00000-0 29527-4 0 6625
2 21089 82.9220 103.0678 0030946 91.8517 268.6203 13.74034946151682

ARSENE

1 22654U 93031B 93338.80803910 -.00000087 00000-0 00000 0 0 2437
2 22654 1.4104 113.5274 2936576 161.9838 210.8642 1.42202044 2990

UO-14

1 20437U 90005B 94046.18347456 .00000060 00000-0 40471-4 0 9649
2 20437 98.5953 132.5942 0010599 186.2827 173.8225 14.29823413212157

AO-16

1 20439U 90005D 94045.75388848 .00000076 00000-0 46533-4 0 7643
2 20439 98.6038 133.2765 0010934 188.0238 172.0765 14.29879034212109

DO-17

1 20440U 90005E 94045.23034447 .00000070 00000-0 44132-4 0 7637
2 20440 98.6058 133.0443 0010965 189.4352 170.6623 14.30017107212047

WO-18

1 20441U 90005F 94045.76328214 .00000059 00000-0 39826-4 0 7657
2 20441 98.6054 133.5798 0011505 188.3662 171.7330 14.29993172212124

LO-19

1 20442U 90005G 94045.74960276 .00000064 00000-0 41740-4 0 7638
2 20442 98.6048 133.7927 0011921 187.6862 172.4137 14.30087334212130

UO-22

1 21575U 91050B 94046.13690949 .00000113 00000-0 52716-4 0 4657
2 21575 98.4466 123.0432 0007219 301.1937 58.8542 14.36890610135556

KO-23

1 22077U 92052B 94046.40390865 -.00000037 00000-0 10000-3 0 3601

2 22077 66.0810 174.9628 0009874 317.5713 42.4539 12.86284764 71129
 AO-27
 1 22825U 93061C 94046.21545311 .000000058 00000-0 41460-4 0 2617
 2 22825 98.6626 123.1936 0008062 202.2052 157.8775 14.27607193 20284
 IO-26
 1 22826U 93061D 94042.21058899 .000000053 00000-0 39268-4 0 2612
 2 22826 98.6649 119.2441 0008529 216.1988 143.8612 14.27708814 19710
 KO-25
 1 22830U 93061H 94045.75293537 .000000053 00000-0 38624-4 0 2647
 2 22830 98.5674 121.3071 0011406 172.0390 188.0975 14.28033386 20227
 NOAA-9
 1 15427U 84123 A 94048.05740928 .000000108 00000-0 57386-4 0 7177
 2 15427 099.0629 097.0472 0014834 198.2531 161.8614 14.13588676473374
 NOAA-10
 1 16969U 86073 A 94048.07887430 .000000192 00000-0 82625-4 0 6151
 2 16969 098.5086 060.7353 0013148 322.0632 038.0209 14.24865197385508
 MET-2/17
 1 18820U 88005A 94046.33979358 .000000030 00000-0 12997-4 0 2628
 2 18820 82.5401 5.5070 0016642 157.5160 202.6730 13.84706663305497
 MET-3/2
 1 19336U 88064A 94039.99790931 .000000051 00000-0 10000-3 0 2623
 2 19336 82.5380 54.3969 0015730 222.0779 137.9138 13.16964807266383
 NOAA-11
 1 19531U 88089 A 94046.98300494 -.000000096 00000-0 00000 0 0 5218
 2 19531 099.1592 032.9867 0011924 112.3219 247.9779 14.12958217278100
 MET-2/18
 1 19851U 89018A 94044.55769401 .000000107 00000-0 82803-4 0 2624
 2 19851 82.5198 242.4732 0011047 225.2162 134.8075 13.84359023250582
 MET-3/3
 1 20305U 89086A 94046.12070456 .000000044 00000-0 10000-3 0 9878
 2 20305 82.5552 354.3730 0006056 241.9787 118.0703 13.04413574206986
 MET-2/19
 1 20670U 90057A 94040.79306496 .000000024 00000-0 79036-5 0 7621
 2 20670 82.5504 309.6649 0016176 139.0978 221.1403 13.84188455182995
 FY-1/2
 1 20788U 90081A 94046.23594868 -.000000254 00000-0 -14043-3 0 8921
 2 20788 98.8422 70.2522 0014658 354.4648 5.6337 14.01322369176623
 MET-2/20
 1 20826U 90086A 94045.22593445 .000000017 00000-0 15837-5 0 7622
 2 20826 82.5209 243.8029 0014675 36.2160 323.9979 13.83572388170755
 MET-3/4
 1 21232U 91030A 94044.59202931 .000000051 00000-0 10000-3 0 6701
 2 21232 82.5391 256.9674 0013673 130.9218 229.3059 13.16460015135098
 NOAA-12
 1 21263U 91032A 94039.95700562 .000000136 00000-0 80464-4 0 9196
 2 21263 98.6320 70.4809 0012014 247.6730 112.3172 14.22366100142301
 MET-3/5
 1 21655U 91056A 94046.41312719 .000000051 00000-0 10000-3 0 6673

2 21655 82.5533 202.7275 0013636 137.2394 222.9769 13.16827457120431
 MET-2/21
 1 22782U 93055 A 94047.11395079 .000000069 00000-0 63374-4 0 2638
 2 22782 082.5509 302.3850 0021878 203.9744 156.0899 13.83000458023351
 POSAT
 1 22829U 93061G 94045.75585944 .000000072 00000-0 46760-4 0 2541
 2 22829 98.6608 122.7699 0009759 191.0097 169.0872 14.28003980 20229
 MIR
 1 16609U 86017 A 94048.08346927 .00010503 00000-0 12582-3 0 1406
 2 16609 051.6194 068.8223 0005218 334.0639 026.0757 15.60261716457315
 HUBBLE
 1 20580U 90037B 94045.21686181 .00001057 00000-0 90647-4 0 4379
 2 20580 28.4690 305.8162 0006080 238.3563 121.6440 14.90475490 11020
 GRO
 1 21225U 91027B 94045.19676059 .00004645 00000-0 10629-3 0 661
 2 21225 28.4619 5.5021 0003857 262.4247 97.5914 15.40075712 37958
 UARS
 1 21701U 91063B 94043.59286458 .00004144 00000-0 38419-3 0 4780
 2 21701 56.9850 298.3343 0004571 105.6879 254.4667 14.96334686132281
 /EX

Date: 18 Feb 94 13:37:00 GMT
 From: news-mail-gateway@ucsd.edu
 Subject: ORBS\$049.MICRO.AMSAT
 To: info-hams@ucsd.edu

SB KEPS @ AMSAT \$ORBS-049.D
 Orbital Elements 049.MICROS

HR AMSAT ORBITAL ELEMENTS FOR THE MICROSATS
 FROM WA5QGD FORT WORTH,TX February 18, 1994
 BID: \$ORBS-049.D
 TO ALL RADIO AMATEURS BT

Satellite: UO-14
 Catalog number: 20437
 Epoch time: 94046.18347456
 Element set: 964
 Inclination: 98.5953 deg
 RA of node: 132.5942 deg
 Eccentricity: 0.0010599
 Arg of perigee: 186.2827 deg
 Mean anomaly: 173.8225 deg
 Mean motion: 14.29823413 rev/day
 Decay rate: 6.0e-07 rev/day^2
 Epoch rev: 21215

Checksum: 317

Satellite: A0-16

Catalog number: 20439

Epoch time: 94045.75388848

Element set: 764

Inclination: 98.6038 deg

RA of node: 133.2765 deg

Eccentricity: 0.0010934

Arg of perigee: 188.0238 deg

Mean anomaly: 172.0765 deg

Mean motion: 14.29879034 rev/day

Decay rate: $7.6e-07$ rev/day²

Epoch rev: 21210

Checksum: 328

Satellite: D0-17

Catalog number: 20440

Epoch time: 94045.23034447

Element set: 763

Inclination: 98.6058 deg

RA of node: 133.0443 deg

Eccentricity: 0.0010965

Arg of perigee: 189.4352 deg

Mean anomaly: 170.6623 deg

Mean motion: 14.30017107 rev/day

Decay rate: $7.0e-07$ rev/day²

Epoch rev: 21204

Checksum: 266

Satellite: W0-18

Catalog number: 20441

Epoch time: 94045.76328214

Element set: 765

Inclination: 98.6054 deg

RA of node: 133.5798 deg

Eccentricity: 0.0011505

Arg of perigee: 188.3662 deg

Mean anomaly: 171.7330 deg

Mean motion: 14.29993172 rev/day

Decay rate: $5.9e-07$ rev/day²

Epoch rev: 21212

Checksum: 309

Satellite: L0-19

Catalog number: 20442

Epoch time: 94045.74960276

Element set: 763

Inclination: 98.6048 deg
RA of node: 133.7927 deg
Eccentricity: 0.0011921
Arg of perigee: 187.6862 deg
Mean anomaly: 172.4137 deg
Mean motion: 14.30087334 rev/day
Decay rate: 6.4e-07 rev/day^2
Epoch rev: 21213
Checksum: 308

Satellite: UO-22

Catalog number: 21575
Epoch time: 94046.13690949
Element set: 465
Inclination: 98.4466 deg
RA of node: 123.0432 deg
Eccentricity: 0.0007219
Arg of perigee: 301.1937 deg
Mean anomaly: 58.8542 deg
Mean motion: 14.36890610 rev/day
Decay rate: 1.13e-06 rev/day^2
Epoch rev: 13555
Checksum: 302

Satellite: KO-23

Catalog number: 22077
Epoch time: 94046.40390865
Element set: 360
Inclination: 66.0810 deg
RA of node: 174.9628 deg
Eccentricity: 0.0009874
Arg of perigee: 317.5713 deg
Mean anomaly: 42.4539 deg
Mean motion: 12.86284764 rev/day
Decay rate: -3.7e-07 rev/day^2
Epoch rev: 7112
Checksum: 311

Satellite: AO-27

Catalog number: 22825
Epoch time: 94046.21545311
Element set: 261
Inclination: 98.6626 deg
RA of node: 123.1936 deg
Eccentricity: 0.0008062
Arg of perigee: 202.2052 deg
Mean anomaly: 157.8775 deg
Mean motion: 14.27607193 rev/day

Decay rate: 5.8e-07 rev/day^2
Epoch rev: 2028
Checksum: 289

Satellite: IO-26
Catalog number: 22826
Epoch time: 94042.21058899
Element set: 261
Inclination: 98.6649 deg
RA of node: 119.2441 deg
Eccentricity: 0.0008529
Arg of perigee: 216.1988 deg
Mean anomaly: 143.8612 deg
Mean motion: 14.27708814 rev/day
Decay rate: 5.3e-07 rev/day^2
Epoch rev: 1971
Checksum: 325

Satellite: KO-25
Catalog number: 22830
Epoch time: 94045.75293537
Element set: 264
Inclination: 98.5674 deg
RA of node: 121.3071 deg
Eccentricity: 0.0011406
Arg of perigee: 172.0390 deg
Mean anomaly: 188.0975 deg
Mean motion: 14.28033386 rev/day
Decay rate: 5.3e-07 rev/day^2
Epoch rev: 2022
Checksum: 286

/EX

Date: 18 Feb 94 13:41:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: ORBS\$049.MISC.AMSAT
To: info-hams@ucsd.edu

SB KEPS @ AMSAT \$ORBS-049.M
Orbital Elements 049.MISC

HR AMSAT ORBITAL ELEMENTS FOR MANNED AND MISCELLANEOUS SATELLITES
FROM WA5QGD FORT WORTH, TX February 18, 1994
BID: \$ORBS-049.M
TO ALL RADIO AMATEURS BT

Satellite: POSAT

Catalog number: 22829

Epoch time: 94045.75585944

Element set: 254

Inclination: 98.6608 deg

RA of node: 122.7699 deg

Eccentricity: 0.0009759

Arg of perigee: 191.0097 deg

Mean anomaly: 169.0872 deg

Mean motion: 14.28003980 rev/day

Decay rate: $7.2e-07$ rev/day²

Epoch rev: 2022

Checksum: 326

Satellite: MIR

Catalog number: 16609

Epoch time: 94048.08346927

Element set: 140

Inclination: 051.6194 deg

RA of node: 068.8223 deg

Eccentricity: 0.0005218

Arg of perigee: 334.0639 deg

Mean anomaly: 026.0757 deg

Mean motion: 15.60261716 rev/day

Decay rate: $1.0503e-04$ rev/day²

Epoch rev: 45731

Checksum: 288

Satellite: HUBBLE

Catalog number: 20580

Epoch time: 94045.21686181

Element set: 437

Inclination: 28.4690 deg

RA of node: 305.8162 deg

Eccentricity: 0.0006080

Arg of perigee: 238.3563 deg

Mean anomaly: 121.6440 deg

Mean motion: 14.90475490 rev/day

Decay rate: $1.057e-05$ rev/day²

Epoch rev: 1102

Checksum: 268

Satellite: GRO

Catalog number: 21225

Epoch time: 94045.19676059

Element set: 66

Inclination: 28.4619 deg

RA of node: 5.5021 deg
Eccentricity: 0.0003857
Arg of perigee: 262.4247 deg
Mean anomaly: 97.5914 deg
Mean motion: 15.40075712 rev/day
Decay rate: 4.645e-05 rev/day^2
Epoch rev: 3795
Checksum: 300

Satellite: UARS
Catalog number: 21701
Epoch time: 94043.59286458
Element set: 478
Inclination: 56.9850 deg
RA of node: 298.3343 deg
Eccentricity: 0.0004571
Arg of perigee: 105.6879 deg
Mean anomaly: 254.4667 deg
Mean motion: 14.96334686 rev/day
Decay rate: 4.144e-05 rev/day^2
Epoch rev: 13228
Checksum: 336

/EX

Date: 18 Feb 94 13:34:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: ORBS\$049.OSCAR.AMSAT
To: info-hams@ucsd.edu

SB KEPS @ AMSAT \$ORBS-049.0
Orbital Elements 049.OSCAR

HR AMSAT ORBITAL ELEMENTS FOR OSCAR SATELLITES
FROM WA5QGD FORT WORTH,TX February 18, 1994
BID: \$ORBS-049.0
TO ALL RADIO AMATEURS BT

Satellite: A0-10
Catalog number: 14129
Epoch time: 94041.03785160
Element set: 261
Inclination: 27.2065 deg
RA of node: 342.3641 deg
Eccentricity: 0.6022608
Arg of perigee: 153.3557 deg

Mean anomaly: 257.8051 deg
Mean motion: 2.05878353 rev/day
Decay rate: -1.38e-06 rev/day^2
Epoch rev: 8016
Checksum: 280

Satellite: UO-11

Catalog number: 14781
Epoch time: 94044.54889300
Element set: 664
Inclination: 97.7907 deg
RA of node: 65.0254 deg
Eccentricity: 0.0011279
Arg of perigee: 310.7761 deg
Mean anomaly: 49.2455 deg
Mean motion: 14.69144313 rev/day
Decay rate: 3.63e-06 rev/day^2
Epoch rev: 53215
Checksum: 306

Satellite: RS-10/11

Catalog number: 18129
Epoch time: 94047.04020088
Element set: 863
Inclination: 082.9204 deg
RA of node: 058.3872 deg
Eccentricity: 0.0011757
Arg of perigee: 005.5029 deg
Mean anomaly: 354.6799 deg
Mean motion: 13.72331248 rev/day
Decay rate: 2.4e-07 rev/day^2
Epoch rev: 33329
Checksum: 301

Satellite: AO-13

Catalog number: 19216
Epoch time: 94046.66135778
Element set: 879
Inclination: 057.8129 deg
RA of node: 267.9831 deg
Eccentricity: 0.7205073
Arg of perigee: 334.9717 deg
Mean anomaly: 002.9154 deg
Mean motion: 02.09729204 rev/day
Decay rate: 2.242e-05 rev/day^2
Epoch rev: 4346
Checksum: 331

Satellite: FO-20
Catalog number: 20480
Epoch time: 94046.42832899
Element set: 659
Inclination: 99.0216 deg
RA of node: 221.3367 deg
Eccentricity: 0.0539917
Arg of perigee: 255.4010 deg
Mean anomaly: 98.6634 deg
Mean motion: 12.83223845 rev/day
Decay rate: $-1.4e-07$ rev/day²
Epoch rev: 18851
Checksum: 320

Satellite: AO-21
Catalog number: 21087
Epoch time: 94044.50409244
Element set: 424
Inclination: 82.9374 deg
RA of node: 234.2226 deg
Eccentricity: 0.0036823
Arg of perigee: 68.1133 deg
Mean anomaly: 292.3931 deg
Mean motion: 13.74534088 rev/day
Decay rate: $9.4e-07$ rev/day²
Epoch rev: 15259
Checksum: 296

Satellite: RS-12/13
Catalog number: 21089
Epoch time: 94044.66379265
Element set: 662
Inclination: 82.9220 deg
RA of node: 103.0678 deg
Eccentricity: 0.0030946
Arg of perigee: 91.8517 deg
Mean anomaly: 268.6203 deg
Mean motion: 13.74034946 rev/day
Decay rate: $4.3e-07$ rev/day²
Epoch rev: 15168
Checksum: 314

Satellite: ARSENE
Catalog number: 22654
Epoch time: 93338.80803910
Element set: 243
Inclination: 1.4104 deg
RA of node: 113.5274 deg

Eccentricity: 0.2936576
Arg of perigee: 161.9838 deg
Mean anomaly: 210.8642 deg
Mean motion: 1.42202044 rev/day
Decay rate: -8.7e-07 rev/day^2
Epoch rev: 299
Checksum: 278

/EX

Date: 18 Feb 94 13:39:00 GMT
From: news-mail-gateway@ucsd.edu
Subject: ORBS\$049.WEATH.AMSAT
To: info-hams@ucsd.edu

SB KEPS @ AMSAT \$ORBS-049.W
Orbital Elements 049.WEATHER

HR AMSAT ORBITAL ELEMENTS FOR WEATHER SATELLITES
FROM WA5QGD FORT WORTH,TX February 18, 1994
BID: \$ORBS-049.W
TO ALL RADIO AMATEURS BT

Satellite: NOAA-9
Catalog number: 15427
Epoch time: 94048.05740928
Element set: 717
Inclination: 099.0629 deg
RA of node: 097.0472 deg
Eccentricity: 0.0014834
Arg of perigee: 198.2531 deg
Mean anomaly: 161.8614 deg
Mean motion: 14.13588676 rev/day
Decay rate: 1.08e-06 rev/day^2
Epoch rev: 47337
Checksum: 335

Satellite: NOAA-10
Catalog number: 16969
Epoch time: 94048.07887430
Element set: 615
Inclination: 098.5086 deg
RA of node: 060.7353 deg
Eccentricity: 0.0013148
Arg of perigee: 322.0632 deg
Mean anomaly: 038.0209 deg

Mean motion: 14.24865197 rev/day
Decay rate: 1.92e-06 rev/day^2
Epoch rev: 38550
Checksum: 313

Satellite: MET-2/17
Catalog number: 18820
Epoch time: 94046.33979358
Element set: 262
Inclination: 82.5401 deg
RA of node: 5.5070 deg
Eccentricity: 0.0016642
Arg of perigee: 157.5160 deg
Mean anomaly: 202.6730 deg
Mean motion: 13.84706663 rev/day
Decay rate: 3.0e-07 rev/day^2
Epoch rev: 30549
Checksum: 289

Satellite: MET-3/2
Catalog number: 19336
Epoch time: 94039.99790931
Element set: 262
Inclination: 82.5380 deg
RA of node: 54.3969 deg
Eccentricity: 0.0015730
Arg of perigee: 222.0779 deg
Mean anomaly: 137.9138 deg
Mean motion: 13.16964807 rev/day
Decay rate: 5.1e-07 rev/day^2
Epoch rev: 26638
Checksum: 335

Satellite: NOAA-11
Catalog number: 19531
Epoch time: 94046.98300494
Element set: 521
Inclination: 099.1592 deg
RA of node: 032.9867 deg
Eccentricity: 0.0011924
Arg of perigee: 112.3219 deg
Mean anomaly: 247.9779 deg
Mean motion: 14.12958217 rev/day
Decay rate: -9.6e-07 rev/day^2
Epoch rev: 27810
Checksum: 325

Satellite: MET-2/18

Catalog number: 19851
Epoch time: 94044.55769401
Element set: 262
Inclination: 82.5198 deg
RA of node: 242.4732 deg
Eccentricity: 0.0011047
Arg of perigee: 225.2162 deg
Mean anomaly: 134.8075 deg
Mean motion: 13.84359023 rev/day
Decay rate: 1.07e-06 rev/day^2
Epoch rev: 25058
Checksum: 297

Satellite: MET-3/3
Catalog number: 20305
Epoch time: 94046.12070456
Element set: 987
Inclination: 82.5552 deg
RA of node: 354.3730 deg
Eccentricity: 0.0006056
Arg of perigee: 241.9787 deg
Mean anomaly: 118.0703 deg
Mean motion: 13.04413574 rev/day
Decay rate: 4.4e-07 rev/day^2
Epoch rev: 20698
Checksum: 291

Satellite: MET-2/19
Catalog number: 20670
Epoch time: 94040.79306496
Element set: 762
Inclination: 82.5504 deg
RA of node: 309.6649 deg
Eccentricity: 0.0016176
Arg of perigee: 139.0978 deg
Mean anomaly: 221.1403 deg
Mean motion: 13.84188455 rev/day
Decay rate: 2.4e-07 rev/day^2
Epoch rev: 18299
Checksum: 328

Satellite: FY-1/2
Catalog number: 20788
Epoch time: 94046.23594868
Element set: 892
Inclination: 98.8422 deg
RA of node: 70.2522 deg
Eccentricity: 0.0014658

Arg of perigee: 354.4648 deg
Mean anomaly: 5.6337 deg
Mean motion: 14.01322369 rev/day
Decay rate: -2.54e-06 rev/day^2
Epoch rev: 17662
Checksum: 323

Satellite: MET-2/20
Catalog number: 20826
Epoch time: 94045.22593445
Element set: 762
Inclination: 82.5209 deg
RA of node: 243.8029 deg
Eccentricity: 0.0014675
Arg of perigee: 36.2160 deg
Mean anomaly: 323.9979 deg
Mean motion: 13.83572388 rev/day
Decay rate: 1.7e-07 rev/day^2
Epoch rev: 17075
Checksum: 317

Satellite: MET-3/4
Catalog number: 21232
Epoch time: 94044.59202931
Element set: 670
Inclination: 82.5391 deg
RA of node: 256.9674 deg
Eccentricity: 0.0013673
Arg of perigee: 130.9218 deg
Mean anomaly: 229.3059 deg
Mean motion: 13.16460015 rev/day
Decay rate: 5.1e-07 rev/day^2
Epoch rev: 13509
Checksum: 285

Satellite: NOAA-12
Catalog number: 21263
Epoch time: 94039.95700562
Element set: 919
Inclination: 98.6320 deg
RA of node: 70.4809 deg
Eccentricity: 0.0012014
Arg of perigee: 247.6730 deg
Mean anomaly: 112.3172 deg
Mean motion: 14.22366100 rev/day
Decay rate: 1.36e-06 rev/day^2
Epoch rev: 14230
Checksum: 260

Satellite: MET-3/5
Catalog number: 21655
Epoch time: 94046.41312719
Element set: 667
Inclination: 82.5533 deg
RA of node: 202.7275 deg
Eccentricity: 0.0013636
Arg of perigee: 137.2394 deg
Mean anomaly: 222.9769 deg
Mean motion: 13.16827457 rev/day
Decay rate: 5.1e-07 rev/day^2
Epoch rev: 12043
Checksum: 304

Satellite: MET-2/21
Catalog number: 22782
Epoch time: 94047.11395079
Element set: 263
Inclination: 082.5509 deg
RA of node: 302.3850 deg
Eccentricity: 0.0021878
Arg of perigee: 203.9744 deg
Mean anomaly: 156.0899 deg
Mean motion: 13.83000458 rev/day
Decay rate: 6.9e-07 rev/day^2
Epoch rev: 02335
Checksum: 310

/EX

End of Info-Hams Digest V94 #176

